

Appl No. 10/533,398
Dated: September 8, 2006
Reply to Office action of August 8, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Withdrawn) A medical device to constrict or occlude a body tissue or vessel, comprising:

a first tissue-engaging member 205 having opposed walls 230, 232 and a first connecting wall 234 defining a first elongate channel 236;

a second tissue-engaging member 210 opposed to the first tissue-engaging member 205 having opposed walls 240, 242 and a second connecting wall 244 defining a second elongate channel 246; and

a securing member 220 for securing the first and the second tissue-engaging members 205, 210 such that front faces of the first and the second connecting walls 234, 244 are opposed to each other.

2. (Withdrawn) The medical device of claim 1, wherein each of the front faces of the first and the second connecting walls 234, 244 includes a plurality of tissue-penetrating elements 238, 248.

3. (Withdrawn) The medical device of claim 1, wherein the securing member 220 is sized and configured to slide into the first and the second elongate channels 236, 246 to securely clamp the first and the second tissue-engaging members 205, 210 around the body tissue or vessel with minimal compressive force.

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4. (Withdrawn) The medical device of claim 3, wherein the force required to secure and maintain adequate traction is independent from the force required to constrict or occlude the body tissue or vessel.

5. (Withdrawn) The medical device of claim 4, wherein only a compressive force needed to perform a specific surgical procedure such as occlusion, ligation or fixation is applied to the body tissue.

6. (Withdrawn) The medical device of claim 5, wherein tissue necrosis due to over-compression is eliminated.

7. (Withdrawn) The medical device of claim 1, wherein at least one of the first and the second tissue engaging-members 205, 210 includes a plurality of bumps, ridges, slots, and holes.

8. (Withdrawn) The medical device of claim 1, wherein the securing member 220 is a spring clip or a deformable clip acting as a retention member and providing uniform pressure across the occluded tissue or vessel.

9. (Withdrawn) The medical device of claim 2, wherein the first and the second connecting walls 234, 244 and the tissue-penetrating elements 238, 248 are formed as an integral, one-piece construction.

10. (Withdrawn) The medical device of claim 2, wherein the tissue-penetrating elements 238, 248 are formed in a plurality of rows.

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11. (Withdrawn) The medical device of claim 10, wherein the number of tissue-penetrating elements 238, 248 per row and the number of rows vary according to each application.

12. (Withdrawn) The medical device of claim 10, wherein the tissue-penetrating elements 238, 248 are aligned or staggered.

13. (Withdrawn) The medical device of claim 2, wherein the tissue-penetrating elements 238, 248 and the securing member 220 have cross-sections of any configuration including polygonal, circular and elliptical configurations.

14. (Withdrawn) A medical device 500 to constrict or occlude a body tissue or vessel, comprising:

a first tissue-engaging portion 505 having a first face including a plurality of tissue penetrating elements or protrusions 525;

a second tissue-engaging portion 510 opposing the first tissue-engaging portion 505 having a second face including a plurality of tissue penetrating elements or protrusions 530; and

a deformable portion 520 connecting the first and the second tissue-engaging portions 505, 510.

15. (Withdrawn) The medical device of claim 14, wherein only a force required to perform a specific surgical procedure such as occlusion, ligation or fixation is applied to the body tissue or vessel.

16. (Withdrawn) The medical device of claim 15, wherein tissue necrosis due to over-compression is eliminated.

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17. (Withdrawn) The medical device of claim 14, wherein the medical device is formed from a flat metal sheet that is die-cut, stamped or etched forming a first notched or tooled portion of the first tissue-engaging portion 505, a smooth connecting portion of the deformable portion 520 and a second notched or toothed portion of the second tissue-engaging portion 510.

18. (Withdrawn) The medical device of claim 17, wherein a plurality of notches or teeth of the first and the second portions are bent so as to extend in the same direction or plane and to form channels within the notches or teeth.

19. (Withdrawn) The medical device of claim 17, wherein the device is formed in a U-shape by bending the deformable portion 520 so that the notches or teeth of the first and the second tissue-engaging portions 505, 510 are opposed.

20. (Withdrawn) The medical device of claim 14, wherein the device is formed from any medically acceptable metal or plastic material that is ductile, malleable or deformable.

21. (Withdrawn) The medical device of claim 20, wherein the metal includes titanium and stainless steel.

22. (Currently amended) An applier 600 for applying a medical device to constrict or occlude a body tissue or vessel, the device having a first tissue-engaging member 205 having opposed walls 230, 232 and a first connecting wall 234 defining a first elongate channel 236, a second tissue-engaging member 240 opposed to the first tissue-engaging member having opposed walls 240, 242 and a second connecting wall 244 defining a second elongate channel 246, and a securing member 220 for securing the first and the second tissue-engaging members 205, 240 such that front faces of the

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first and the second connecting walls ~~234, 244~~ are opposed to each other, the applier comprising:

- an elongate shaft ~~605~~ having a proximal end and a distal end ~~610~~;
- a pair of opposed jaws ~~615, 620~~ connected at the distal end of the elongate shaft ~~605~~;
- a handle operably connected at the proximal end of the elongate shaft ~~605~~ to open and close the opposed jaws ~~615, 620~~; and
- a sliding member ~~625~~ operably connected within the elongate shaft ~~605~~ to advance the securing member ~~220~~ over the first and the second tissue-engaging members ~~205, 210~~ after closure of the jaws ~~615, 620~~.

23. (Currently amended) The applier of claim 22, wherein the jaws ~~615, 620~~ operate to apply the first and the second tissue-engaging members ~~205, 210~~ around a target body tissue or vessel.

24. (Currently amended) The applier of claim 23, wherein the first and the second tissue-engaging members ~~205, 210~~ are applied to the jaws ~~615, 620~~ either manually or automatically.

25. (Currently amended) The applier of claim 23, wherein the jaws ~~615, 620~~ are compressed using only a force required for a specific surgical procedure such as occlusion, ligation or fixation.

26. (Currently amended) The applier of claim 25, wherein the first and the second tissue-engaging members ~~205, 210~~ and the securing member ~~220~~ are introduced to a surgical site in an un-assembled condition through a small port or trocar.

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27. (Currently amended) The applier of claim 26, wherein the sliding member 625 operates to urge the securing member 220 forward and over the first and second tissue-engaging members 205, 210 to secure the medical device.

28. (Original) The applier of claim 27, wherein the applier and the medical device are sized and configured for use in a minimally invasive or laparoscopic surgical procedure.

29. (Currently amended) The applier of claim 22, further comprising a plurality of slots in each of the opposed jaws 615, 620 to receive a plurality of the medical devices or multiple staple-clips to simultaneously apply the medical devices or staple-clips.

30. (Original) The applier of claim 29, further comprising a cutting member to be advanced between the medical devices or staple-clips after they have been applied to transect the body tissue or vessel between the medical devices or staple-clips.

31. (Withdrawn) A clip applier 850 for applying a clip to constrict or occlude a body tissue or vessel, the clip having a first arm 880 including a latch mechanism 890 at a distal end and a second arm 885 folded over the first arm 880 at a distal end and configured to interlock or mate with the latch mechanism 890 of the first arm 880, the applier comprising:

- a handle 885 for storing the clip; and
- a thumb actuated mechanism 860 operably slidable along the handle 885 by sliding the thumb actuated mechanism 860 forward 870a and backward 870b to release the clip.

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32. (Withdrawn) The clip applier of claim 31, wherein the handle 855 further comprises a reservoir for storing a plurality of clips 865.

33. (Withdrawn) The clip applier of claim 32, wherein the plurality of clips 865 are strung end-to-end in a clip sleeve 892 suspended through an end port.

34. (Withdrawn) The clip applier of claim 33, wherein the plurality of clips 865 are formed from a single piece of material.

Claims 35-38 (Canceled).

39. (Withdrawn) A clamp 950 to constrict or occlude a body tissue or vessel, comprising:

a tubular section 955 having an opening 960 extending from a proximal end 965 to a distal end 970; and

a lead-in wire 975 operably attached to the proximal end 965 and is movable between an open position and a closed position,

wherein in the closed position, the lead-in wire 975 is slidably received and secured in the opening 960 of the tubular section 955.

40. (Withdrawn) The clip of claim 39, wherein the lead-in wire 975 is bent against a wall of the tubular section 955 to further secure the body tissue or vessel.

41. (Withdrawn) The clip of claim 39, wherein the clamp is used in donor nephrectomy.

42. (Withdrawn) A medical device 1010 to constrict or occlude a body tissue or vessel, comprising:

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a clip 1011 formed from a first wire including opposed arms 1013, 1014 and openings 1015, 1016; and

a staple 1012 for securing the clip 1011, the staple 1012 formed from a second wire having legs 1017, 1018 to puncture the body tissue or vessel and to interlock the clip 1011 through the openings 1015, 1016.

43. (Withdrawn) The medical device of claim 42, wherein the arms 1013, 1014 further comprise a latch mechanism at their distal ends to mate with each other when the arms 1013, 1014 are closed or clamped together.

44. (New) The applier of claim 22 wherein the elongate shaft is sized to fit through a surgical trocar port.

45. (New) The applier of claim 22 wherein one of the jaws has a first slot arranged to operably receive the first tissue engaging member without the securing member and another of the jaws has a second slot arranged to operably receive the second tissue engaging member without the securing member.

46. (New) The applier of claim 45 wherein the first slot is arranged to operably receive a first portion of the securing member and the second slot is arranged to operably receive a second portion of the securing member, the first and second portions of the securing member being different.

47. (New) The applier of claim 22 wherein one of the jaws has a first slot sized and arranged to simultaneously hold the first tissue engaging member and a first portion of the securing member and another of the jaws has a second slot arranged to simultaneously hold the second tissue engaging member and a second portion of the securing member.